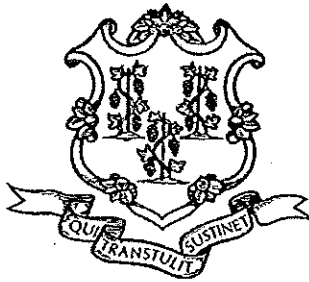


State of Connecticut  
Department of Motor Vehicles



Report to  
Senator Catherine Osten and Representative Tim Ackert

Camera Video Systems  
School Bus and Student Transportation Vehicles

November 2014  
Commissioner Melody A. Currey

## Feasibility of Video Camera Systems in School Transportation Vehicles

### Transporting Special Needs Children

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#### Introduction

The Department of Motor Vehicles has been requested to examine “the feasibility of placing video cameras in vehicles which transport special needs children to and from school and other activities.” In addition to that question, we have expanded our response to include information on School Districts which provide video camera systems on regular student school buses.

Connecticut registers in total approximately 7600 school buses and 2500 student transportation vehicles; some of which are utilized to transport special needs students.

In general, Connecticut state law requires each local or regional school district to provide transportation to school age children wherever reasonable and desirable (CGS section 10-220(a)).

School districts have the authority to create their own transportation policies within the boundaries of the law. The State Board of Education issues suggested guidelines for policies, but they are not mandatory. Through our research DMV cannot find any requirement that mandates school districts to provide video camera systems on any type of school bus or student transportation vehicle.

A number of Connecticut school districts have adopted the practice of providing video camera systems in at least some of their school buses and student transportation vehicles (Definition Table 2) – some in special needs vehicles, others in partial bus fleets and some in all school buses and student transportation vehicles.

Through our inquiries, we have found that the preferred method of these providing video camera systems within districts is through contracts negotiated with the school transportation vendor.

There are two types of video camera systems for placement on school buses and other student transportation vehicles that are used by Connecticut school districts. The first type, normally referred to as a stop-arm camera, is mounted outside of the vehicle, and monitors violators passing a stopped school bus while lights are flashing and stop-arms are engaged. The second, more common type utilized, is an interior camera which monitors and records inside bus activity for the duration of each route. As requested, this review will concentrate on the second type – video camera monitoring of activity inside the bus.

Through the cooperation of the Connecticut School Transportation Association (COSTA), a survey was conducted concerning the use of interior video camera systems in both special needs vehicles and regular school buses (Table 1).

### Question 1

*Is it feasible for video cameras to be placed in all vehicles which transport special needs children to school or school activities?*

### Response

Much depends on the individual school district and its method of operations. It is our understanding that school buses or other student transportation vehicles are not usually designated solely for special needs students only. Many districts have mainstreamed special needs students onto regular education transportation school buses or use mini vans and passenger cars to transport small numbers of special needs students. In a sampling survey (Table 1) provided by COSTA out of 67 school districts surveyed 37 districts (55.22%) provide for video camera systems on their vehicles used for special needs students. The response varied from districts providing their entire special needs fleet with systems, partial fleet coverage (depending on need) to none on dedicated special needs vehicles. However, this does not preclude system coverage by those districts that have mainstreamed special needs students on regular type school buses that have video camera systems. Due to the multi-use of school buses within a school district, the sample survey has shown that over 80% of those surveyed are equipping all of their school buses with video camera systems.

In determining the feasibility of placing video cameras in special needs vehicles and other student transportation vehicles, consideration must be given to private schools that also provide transportation for regular education students and special needs students. Students who participate in special programs which allow them to attend schools in other districts also need to be taken into consideration. This may result in additional vehicles that would need to be included into any video camera project.

There is no question that video camera systems can be utilized in most vehicles that transport special needs children, but school districts would have to take into consideration overall operational requirements, such as the types of – vehicles utilized – (school buses, vans, cars), - availability of district funds, - and current transportation contracts. The number of special needs students, transportation routes, and school locations will play a part in the type of transportation vehicle utilized by the district and the feasibility of equipping that vehicle with a video camera system.

## Question 2

*What would the cost be for these cameras and their upkeep?*

### Response

School districts either directly fund the equipment purchase, installation and maintenance cost or include the video camera system cost as part of their student transportation contract with their vendor. Several student transportation companies offer the video camera systems as options in their contracts.

Of those surveyed, the preferred method is through the contractual route with the school transportation vendor. Contractual considerations and system costs will vary from school district to school district.

However, based on our research, the cost seems to vary quite widely depending upon a few different factors. Camera type and quality, number of systems requested, camera system features, system activation method, audio, installation costs, GPS capability, and accessibility to video feed (hard drive, Wi-Fi, memory cards, etc.), feed availability, system maintenance needs, as well as specific equipment vendor all influence the total cost.

A simple system can start at \$150-\$160 and range up to \$1,200 for a two camera system to more than \$2,100 for a four camera system. Initial installation can add \$150-\$200 per unit and some products call for a monthly maintenance fee (\$19). However, without system specifics and the number of units, it is difficult to firmly determine unit costs.

### Question 3

*Where would the video feed or recorded video from the camera go and who might see it?*

### Response

Depending on factors such as types of video camera systems, school districts involved, and the bus company, video feed or recorded video from the cameras can be viewed differently. A well-known Connecticut bus company uses five different types of cameras purchased from different companies. One product has the capability of reviewing the video either wirelessly or by manually pulling the hard drive, allowing immediate availability. All have similar storage characteristics where data can be held for approximately one month before being overwritten. Older systems had a short lifetime on memory cards of about 2 weeks before needing manual formatting.

Advanced systems can utilize a Wi-Fi (hot spot) retrieval mechanism which allows buses or system equipped vehicles to drive to a 'hot spot' for immediate electronic download.

Other ways data is stored is by using the hard drive camera box, disks, memory cards, and reusable hard drives which all connect to computers for uploading. Contingent on which equipment is used, video images can be held for thirty to ninety days. Upon request respective staff can pull data of a certain day and time within its storage period for review.

Survey respondents indicated that only the bus company and school districts have initial access to these videos. As needed, information is shared with school administration, police officials, and parents (at times). Most school districts that require cameras on their student transportation vehicles have approved written policy/protocols that govern system operation, monitoring and release of video information.

#### Question 4

*Are there any major hindrances other than cost to this proposal?*

#### Response:

Certainly for some school districts and private schools, cost is expected to be a major consideration - whether that is for a limited implementation to special needs transportation vehicles or all student transportation vehicles. Determining the necessity of outfitting all school buses or only certain school buses and/or student transportation vehicles with video camera systems based on operational needs is yet another obstacle to face. If only certain buses were equipped then the school districts would have to ensure that special needs students are transported on only those buses equipped with such video systems. This does become somewhat impractical when dealing with multi-route districts, limited vehicle resources and multi-use vehicle types.

System downtime may vary from district to district depending on such variables as maintenance schedules, system breakdowns, as well as factors that affect the vehicle itself (breakdown, schedules, routes, etc.) which may provide some difficulties in maintaining the video systems.

If the number of students needing transportation is not a significant number, those students that live outside of regular routes, long distances or have to attend schools outside of their respective district, may be transported on vehicles that may not be equipped or the vehicle type determines the impracticality of equipping such vehicles with camera video systems.

Contractual provisions with current vendors may preclude additional equipment installation or vehicle replacements may necessitate that any program be phased in with a vehicle replacement schedule.

Should a requirement for a video camera system be promulgated, the question often becomes where should the responsibility for costs of such implementation and maintenance of mandated provisions rest.

## Notes

Through surveys submitted by COSTA and the review of the agency's research, we have found that more and more school districts in Connecticut are providing for the increased safety of students through the utilization of Public Act 11-255 effective July 1, 2011. This Public Act, codified in CGS section 14-279a(b), states: "*A municipality or local or regional board of education may install, operate and maintain live digital video school bus violation detection monitoring systems, or may enter into an agreement with a private vendor for the installation, operation and maintenance of such monitoring systems.*" The process contemplates that private vendors may be engaged to work with school districts and their contracted bus vendors for the installation, operation and maintenance of such monitoring systems.

Such video systems utilize motion sensor cameras which are installed on the front and rear driver's side of a school bus in order to monitor traffic while school buses are stopped and children are loading or exiting the bus. These systems capture visual images of the violator's license plate number and indicate the date, time and location of the event. This evidence is submitted to local law enforcement for review to determine if a warning or if the issuance of a citation is warranted. If a citation is issued, the citation is mailed to each violator. The revised statute provides for a first offense fine of \$450. As of July 1, 2011, the stop arm program may be funded by a portion of the fines generated under State Statute 14-279(a) as provided for by Statute 51-56(a).

Every day, thousands of drivers speed past school bus stop signs endangering children and distracting bus drivers. A 2012 study conducted by the National Association of State Directors of Pupil Transportation Services concluded that 28 states found that more than 88,000 vehicles illegally passed 100,000 school buses in just one day. That represents more than 16 million illegal passes nationally in a typical 180-day school year. With over 500,000 students using the school bus services to attend school and other school activities in Connecticut, implementation of stop-arm cameras are assisting to reduce those numbers and provide for the increased safety of Connecticut children.

Connecticut School Districts should be encouraged to utilize current statutes in providing similar programs through-out the state. The Connecticut School Transportation Association has taken a leading role in fostering new programs.

## Summary

Yes, it is feasible from a technical perspective to expand placement of interior video camera systems in all vehicles which transport special needs children to school or school activities. However, many factors require further consideration for local projects to be successful. Such factors include the ability for school districts to provide funding for the video camera systems, maintenance and monitoring, operational requirements, contractual provisions of current vendor contracts, student vehicle types, multi-use vehicle needs, and established needs for such systems.

The safety of all children being brought to school, back home, and to other school functions is essential. Cameras have proven to be very beneficial for school authorities and administrators, parents, law enforcement, bus drivers, and most importantly, students. Incidents are recorded and determinations can be made if there are issues to be followed up. Interior camera systems provide valuable information about the operation of each school bus and the conduct of its occupants.

As we know from experience, technological advantages play an important part in bus/student safety but must be paired with training, enforcement, employee screening, and vendor selection.

Based on COSTA's sample survey, the assumption can be made that Connecticut school districts and transportation vendors are taking the initiative in providing video camera systems in vehicles transporting special needs students as well as other school students.

The statewide association (COSTA) is taking a leadership role in encouraging adoption of video camera system initiatives and would play an important part in any system expansion.

**Table 1 - Sample Survey**

**School District Video Camera System Usage**

Town	Are cameras in special needs vehicles?	Are cameras in regular education vehicles?	How are video images stored?	Are monitors required on special needs vehicles by school district?
Ansonia	No	Yes	Hard Drive/Memory Card	Yes
Berlin	No	Yes	Hard drive	No
Bethel	Yes	Yes	Hard Drive Camera Box	No
Bloomfield	Yes	Yes	DVD	No
Bolton	Yes	Yes	Hard Drive Camera Box	No
Branford	Yes	No	-	No
Bristol	Yes	Yes	On Board Computer	Yes
Brookfield	Yes	Yes	Hard Drive/Memory Card	No
Brooklyn	Yes	Yes	Hard Drive Camera Box	Not all
Colchester	No	-	-	As needed
Darien	Yes	Yes	Hard Drive Camera Box	2 vans have an aide/nurse
Derby	No	Yes	Hard Drive/Memory Card	Yes
East Hartford	As needed	Yes	Memory Card	As needed
East Haven	No	Yes	Reusable Hard Drives	Case by case
East Lyme	No	Yes	School Data Base	No
Ellington	Yes	Yes	Disk	No
Fairfield	Yes	Yes	Computer	Just 2
Glastonbury	No	Yes	Memory Card	As needed
Granby	No	-	-	No
Hamden	Yes	Yes	On Board Computer	Not all
Ledyard	No	-	-	As needed
Lisbon	Yes	Yes	Laptop	Yes
Litchfield	No	Yes	Hard Drive/Memory Card	No
Madison	No	Yes	Reusable Hard Drives	Case by case
Manchester	Yes	-	-	Not all
Mansfield	No	Yes	Reusable Hard Drives	Case by case
Meriden	No	Yes	Hard Drive	No
Middlebury	No	-	-	Yes
Milford	Yes	Yes	Reusable Hard Drives	Case by case
Monroe	Yes	Yes	Hard Drive/Memory Card	Yes
Newtown	Yes	Yes	Hard Drive/Memory Card	Yes
Newington	As needed	Yes	Memory Card	As needed
New Fairfield	Yes	Yes	Hard Drive Camera Box	No
New Haven	Yes	Yes	Hard Drive Camera Box	Yes
New London	No	-	-	As needed
New Milford	Yes	Yes	Hard Drive/Memory Card	No
Norwich	Yes	Yes	Laptop	Yes
Norwalk	No	-	-	-

Town	Are cameras in special needs vehicles?	Are cameras in regular education vehicles?	How are video images stored?	Are monitors required on special needs vehicles by school district?
Oxford	Yes	Yes	Hard Drive/Memory Card	No
Preston	No	-	-	As needed
Region 1	No	Yes	Hard Drive/Memory Card	No
Region 4	No	Yes	Hard Drive Camera Box	No
Region 6	No	Yes	Hard Drive/Memory Card	No
Region 10	Yes	Yes	Hard Drive/Memory Card	No
Region 12	Yes	Yes	Hard Drive/Memory Card	No
Region 14	No	-	-	Yes
Region 16	Yes	Yes	Hard Drive/Memory Card	Yes
Ridgefield	Yes	Yes	Hard Drive Camera Box	No
Rocky Hill	No	Yes	Hard Drive	Yes
Seymour	Yes	Yes	Hard Drive/Memory Card	Yes
Simsbury	No	Yes	Removable Hard Drive	2 vans
Somers	Yes	Yes	Disk	Yes
Southington	No	Yes	Hard Drive	Yes
South Windsor	Yes	Yes	Hard Drive Camera Box	No
Stamford	Yes	Yes	BOE External Hard Drive	Yes
Stonington	No	-	-	Not all
Stratford	No	Yes	Reusable Hard Drives	Case by case
Thompson	Yes	-	-	Yes
Tolland	Yes	-	-	The wheel chair unit and 1 for behavior
Torrington	No	Yes	Hard Drive/Memory Card	No
Vernon	Yes	Yes	Computer	Just 1
Wallingford	Yes	Yes	Reusable Hard Drives	Case by case
Waterbury	Yes	Yes	Hard Drive/Memory Card	Yes
Watertown	Yes	Yes	Disk	Yes
Westbrook	No	Yes	Hard Drive Camera Box	Yes
West Hartford	Yes	Yes	Hard Drive Camera Box	No
Wethersfield	Yes	Yes	Reusable hard drives	Case by case

\*\*Information supplied by the Connecticut School Transportation Association (COSTA)

Table 2 - Definitions	
	Definition
School Bus	<p>(Section 14-1 (77)): "...means any school bus, as defined in section 14-275, including a commercial motor vehicle used to transport preschool, elementary school or secondary school students from home to school, from school to home, or to and from school-sponsored events, but does not include a bus used as a common carrier."</p> <p>(Section 14-275): "...any motor bus painted yellow, constructed, equipped and registered...which is regularly used for transporting school children to and from school or school activities whether or not for compensation or under contract to provide such service. No vehicle shall be registered as a school bus unless it complies with all requirements of sections 14-275 to 14-281, inclusive, as to color, markings, equipment and inspection, and each such vehicle shall be inspected prior to such registration in accordance with regulations prescribed by the Commissioner of Motor Vehicles, provided any new school bus that is registered between August first and the start of the next succeeding school year and is inspected prior to registration, in accordance with such regulations, shall be exempt from further inspection until September of the following year..."</p>
Student Transportation Vehicle	<p>(Section 14-212 (9)): "...any motor vehicle other than a registered school bus used by a carrier for the transportation of students to and from school, school programs or school-sponsored events..."</p>
Operation of school bus monitoring system by board of education or municipality. Vendor agreement. Report.	<p>(Section 14-279a): "Operation of school bus monitoring system by board of education or municipality. Vendor agreement. Report. (a) As used in subsection (c) of section 14-279, this section and section 14-279b, "live digital video school bus violation detection monitoring system" or "monitoring system" means a system with one or more camera sensors and computers that produce live digital and recorded video images of motor vehicles being operated in violation of section 14-279. Such monitoring system shall produce a live visual image that is viewable remotely and a recorded image of the license plate number of a motor vehicle violating said section 14-279. Such recorded image shall indicate the date, time and location of the violation.</p> <p>(b) A municipality or local or regional board of education may install, operate and maintain live digital video school bus violation detection monitoring systems, or may enter into an agreement with a private vendor for the installation, operation and maintenance of such monitoring systems. Such agreement shall provide for the compensation to the vendor for the expense of the monitoring services</p>

and cost of equipment provided by the vendor and for the reimbursement of the vendor for the expenses of installing, operating and maintaining the monitoring system. Such agreement shall provide that the vendor shall, on an annual basis, submit a report to such municipality or local or regional board of education that includes, but is not limited to: (1) The total number of citations issued as a result of a violation detected and recorded by the monitoring system, and (2) the total amount of funds collected. The municipality or local or regional board of education shall, within thirty days, submit such report to the joint standing committee of the General Assembly having cognizance of matters relating to transportation. A municipality or local or regional board of education serving a municipality that has entered into an agreement with a private vendor for the installation, operation and maintenance of a live digital video school bus violation detection monitoring system shall use amounts remitted to such municipality in accordance with subsection (e) of section 51-56a, in respect to the violation of section 14-279, to reimburse the private vendor for the expenses for installing, operating and maintaining the monitoring system.

(c) A warning sign shall be posted on all school buses in which a monitoring system is installed and operational indicating the use of such system.

(d) A monitoring system shall be installed so as to record images of the license plate number of a motor vehicle only, and shall not record images of the occupants of such motor vehicle or of any other persons or vehicles in the vicinity at the time the images are recorded."